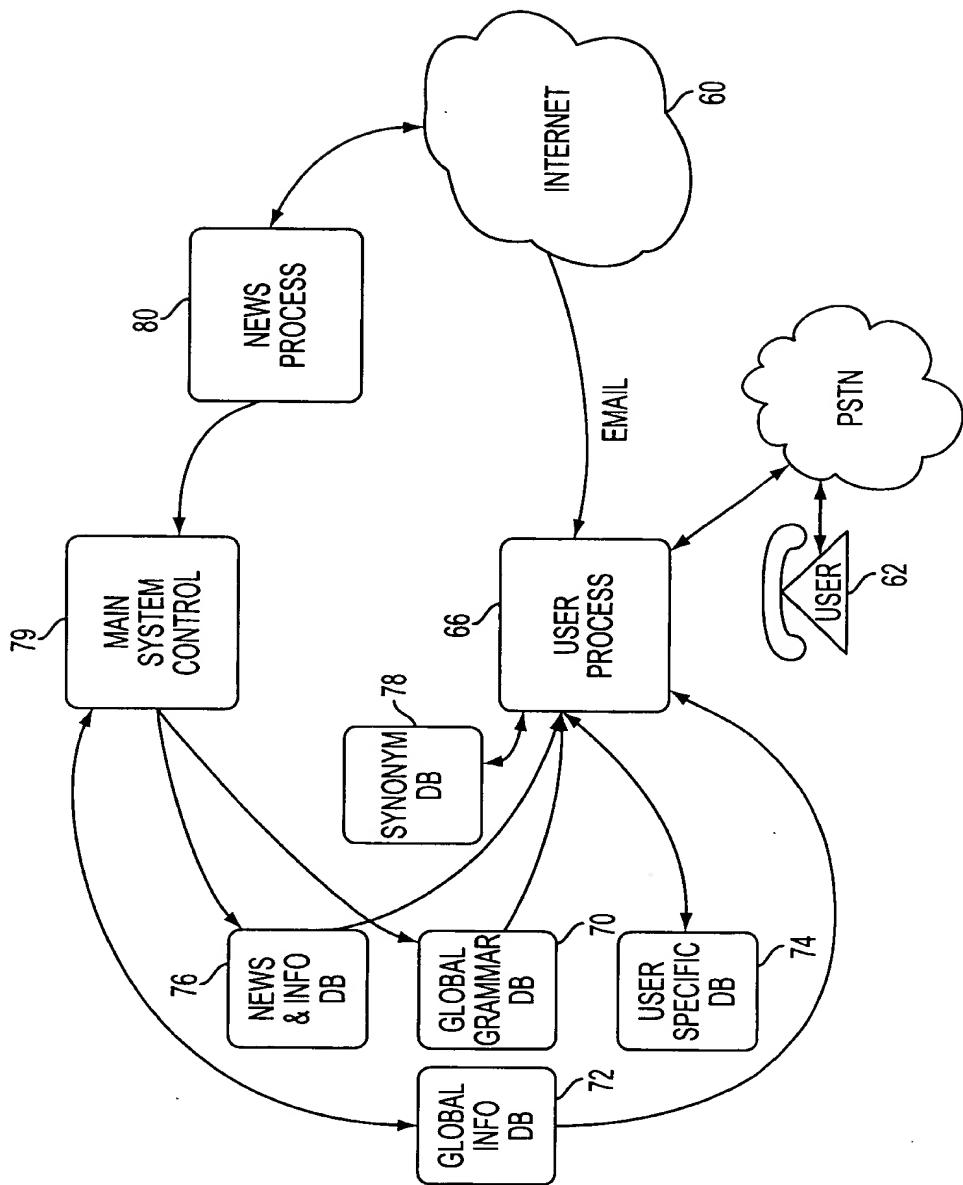


**FIG. 1**  
(PRIOR ART)

FIG. 2



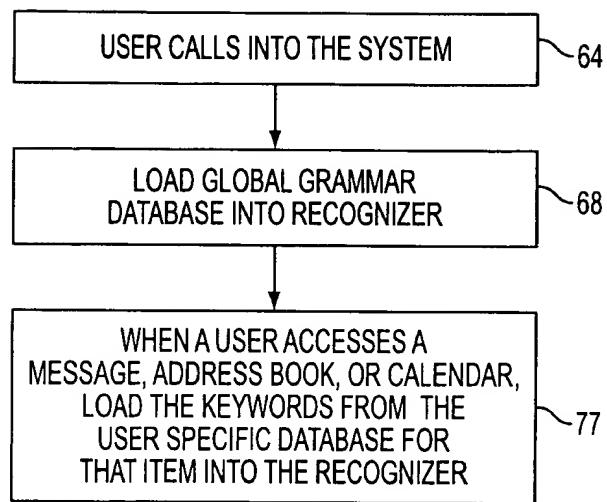


FIG. 3

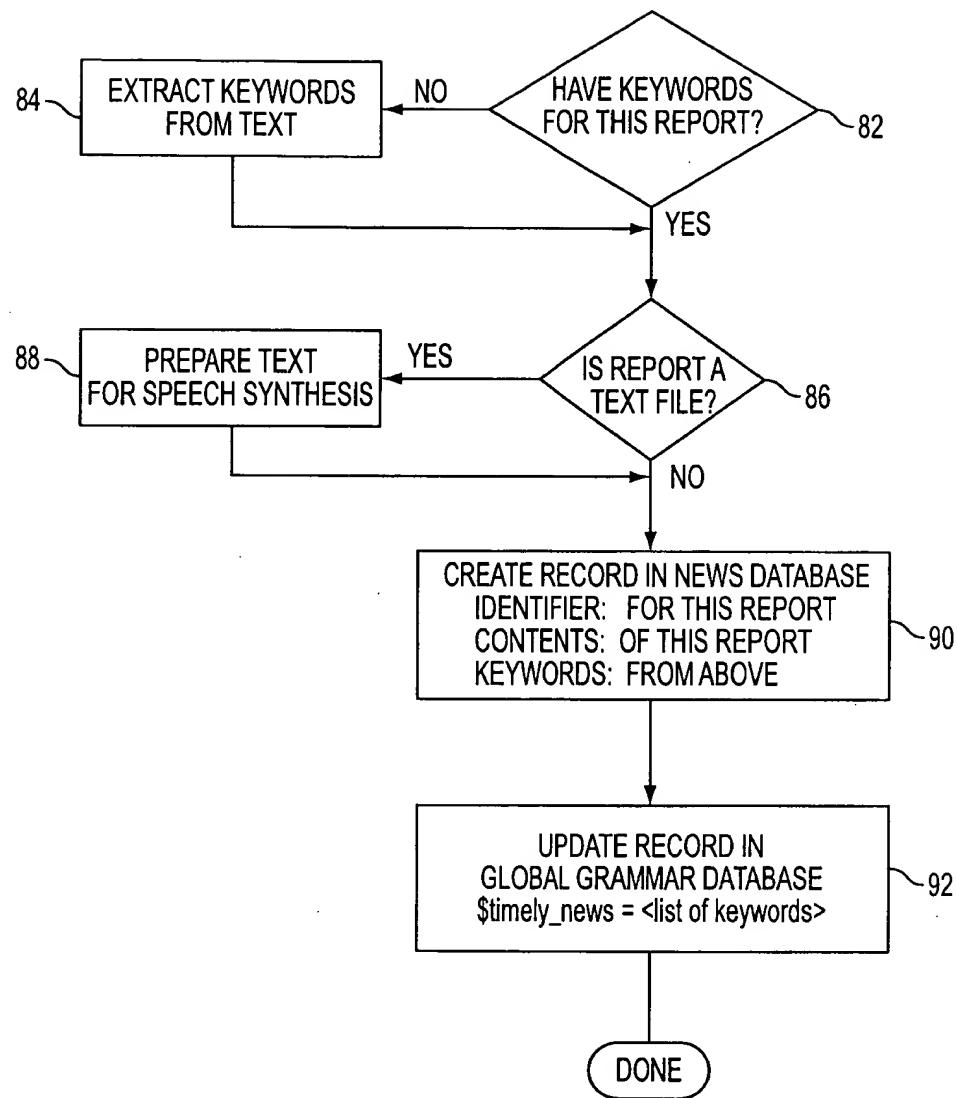


FIG. 4

## NEWS DATABASE

<identifier>      <content>      <keyword list>      <when obtained>

## GLOBAL GRAMMAR DATABASE

\$timely\_news = <current news keywords>  
\$news = ((tell me about [the]) | (what is happening in)) \$timely\_news  
\$weather = what is the (forecast for | weather in) \$user\_weather\_cities  
\$trains = when are the trains to \$user\_train\_cities  
\$flights = when are the flights to \$user\_flight\_cities

## GLOBAL INFORMATION DATABASE

\$weather\_cities = Boston | San Francisco | Paris | Tel Aviv | Somerville | ...  
\$airline\_cities = Boston | San Francisco | Paris | Tel Aviv | ...  
\$train\_cities = Boston | San Francisco | Paris | Amsterdam | ...

## USER SPECIFIC DATABASE

<type>      <contents>      <keywords>

type = email, calendar, address book, voice mail  
contents = <actual text>  
keywords = <type> <value>  
ktype = user\_weather\_city, user\_train\_city, user\_flight\_city

FIG. 5

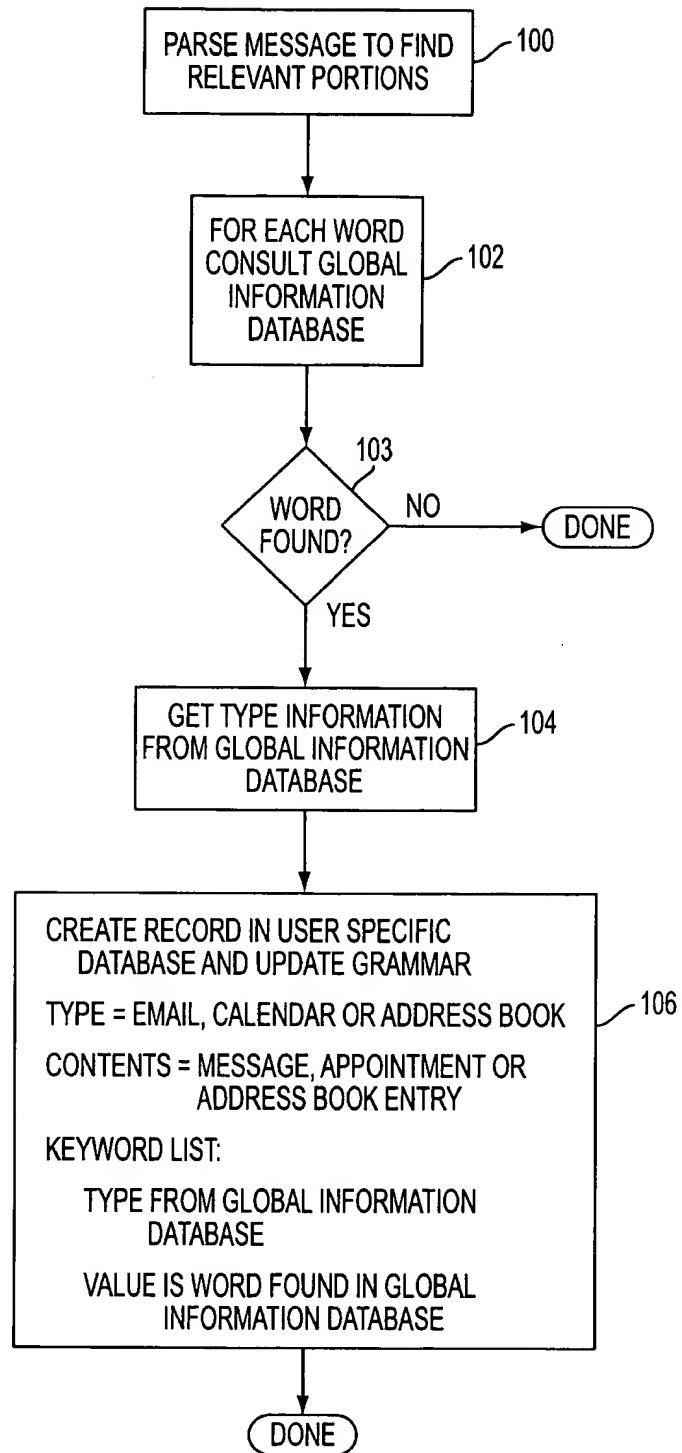


FIG. 6